

**Evolution of the American Airstrike: Psychological Impacts on Drone Operators and WWII Bomber Pilots**

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### **Abstract**

This research takes a look at the similarities and differences between bomber pilots during World War II and drone operators in the twenty-first century modern military setting. The comparisons will be based on psychological effect of combat on each group as well as the ethical concerns related to their vastly disparate combat environments. This project's conclusions are based on an analysis of three key aspects: Technological advances, physical distance from the battlefield, and the amount of public support for the given conflict. Public is assessed in part by comparing WWII experiences to other twentieth-century conflicts such as Vietnam and Korea to get a sense of how lack of public support affected pilots before the automation of aircraft. Evidence from diaries, memoirs, and interviews of bomber and drone pilots is used in addition to contemporary psychology reports. Psychological impacts on soldiers has been a very important area of concern since World War I when, what is now called PTSD, was simply referred to as "shell shock". Many believe that separation from the battlefield by the automation of aircraft reduces the amount of stress and anxiety a pilot faces, this is not the case and understanding the similarities may help us understand just how to go about dealing with this prominent issue. The psychological impacts of combat on pilots is directly connected to the increased importance of airpower in the United States. The technology resulting from the automation of modern weaponry has changed the way the military performs reconnaissance and carries out airstrikes across the world. The shifting of combat from the battlefield to the home front has reduced the imminent danger that was faced by bomber pilots during World War II, while increasing the amount of separation from companionship with fellow crewmembers, and other military personnel. Public support for pilots in the military has changed dramatically with time, World War II saw immense public support while subsequent conflicts such as Vietnam, and current world conflicts have not been widely accepted by the public. The common misconceptions that surround the psychological impacts on American aviators since WWII will hopefully be abolished by this research carried out that centers around collective public support for aviators, technological advances in the aviation industry and the physical distance from the battlefield that aviators experience.

## Introduction

War leaves a lasting impact on everyone involved, whether it be the innocent bystander that gets caught up in the middle of the conflict, or the general, giving the orders to attack or defend certain areas deemed important. The experiences of war are different for each and every person, some develop Post Traumatic Stress Disorder (PTSD), whilst some are not mentally affected at all, and are open and willing to tell their story to whomever asks. There is a common misconception that military aviators experience lower levels of mental stress compared to infantry due to their separation from the physical battlefield. This claim over time has proven to not be the case and many pilots have suffered from the phenomenon known as “Flying Fatigue” or “Fear of Flying”. “Flying Fatigue” is a term that was used during the 8<sup>th</sup> Air Force Evaluation that was conducted over the units first year of operational duty in the European theatre. “Flying Fatigue” is defined as “ordinary fatigue and the physical and mental symptoms of it and does not imply that the individual is emotionally sick.”<sup>1</sup> Over time this phenomenon still exists and remains a problem in modern drone operations. The psychological and moral aspects of being a military aviator are, in fact, strikingly similar from the time of World War II high level bombing missions to today’s modern drone operations.

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<sup>1</sup> Hastings, Wright, Glueck. *Experiences of the 8<sup>th</sup> Air Force* (Army Air Force, Josiah Macy, Jr. Foundation, New York 21, N.Y, 1943).

Although different in terms of technological advances and physical placement, these two distinct groups share common psychological stresses as well as moral dilemmas. Prior research on this topic indicates that these issues have persisted since World War II and are just as important to understand in the modern military setting. The problems that arise are those that are nearly impossible to avoid; switching to drone technology was supposed to help aviators ease their conscience and protect their lives, but surprising affects have arisen in the mental health of many drone operators that suggests otherwise. These two groups are not very different, and I believe they share many more similarities than is currently perceived. The purpose of this research is to define the differences and similarities between these two distinct groups. The psychological impacts of combat on pilots is directly connected to the increased importance of airpower in the United States. The technology resulting from the automation of modern weaponry has changed the way the military performs reconnaissance and carries out airstrikes across the world. The shifting of combat from the battlefield to the home front has reduced the imminent danger that was faced by bomber pilots during World War II, while increasing the amount of separation from companionship with fellow crewmembers, and other military personnel. Public support for pilots in the military has changed dramatically with time, World War II saw immense public support while subsequent conflicts such as Vietnam, and current world conflicts have not been widely accepted by the public. Evaluating and comparing the similarities and differences between Drone Operators and WWII bomber pilots on the basis of Technological advances, Physical Distance and Collective public support and knowledge will help determine what can be done in order to create awareness for the mental health of American Aviators.

## Literature Review

Since the onset of World War II (WWII), airpower has been one of the most effective and efficient ways of conducting a strike on planned positions. Turning the airplane into an effective weapon has been the goal of the United States and many other nations around the world for many years. Gaining air superiority gives an advantage to the side that is able to obtain it, air superiority allows one side to gain reconnaissance advantages, as well as being able to weaken defense from the air before sending in the troops on the ground. The European theatre during WWII saw the use of heavy bombers such as the B-17 Flying Fortress and the B-24 Liberator, both used to strike targets deep into enemy territory. In his book *Wings of Judgement: American Bombing In World War II*, Ronald Schaffer describes the tactics and the roles that bomber crews and pilots were tasked with during the air campaign during WWII. In his book Schaffer examines not only the goal of the strategic bombing missions, but also explains how the heavy bombardment impacted both the important monuments in Europe and the civilian populations.<sup>2</sup> The United States took many strides to ensure that they had the most dominant air force during WWII; the use of the Atomic Bomb, which ultimately ended the war, was a prime example of the U.S. flexing their muscles and showing the world they were dominant.

According to David Hume, this strive for dominance has not faltered since the time of WWII:

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<sup>2</sup> Ronald Schaffer, *Wings of Judgement: American Bombing In WWII* (Oxford University Press, 1985).

“The advent of Unmanned Aerial Vehicles (UAVs) has changed the nature of warfare. Their Persistence, economy, and utility have made them indispensable on the battlefield. What began as an advanced concept technology demonstration (ACTD) in 1994 with the UAV that became the RQ-1 Predator has evolved into the armed MQ-1 Predator.”<sup>3</sup>

The Predator Drone was the one that started the new drone age that the United States has entered into. The Predator was the first drone of its kind that had the capabilities to be flown halfway across the world and have a live feedback as to what the drone was seeing. The predator drone was able to fly long missions and give live feedback to the pilots and the command centers that oversaw the use of the drone. Being able to get a bird’s eye view without physically being in any danger allowed the United States Air Force (USAF) to effectively recon and take out targets. Lieutenant Colonel, USAF, David Glade discusses the United States fascination with the use of drone in a military setting. In his article “Unmanned Aerial Vehicle: Implications for Military Operations”, Glade sees the importance of what the drone can do both for reconnaissance but also in terms of being used to carry advanced weaponry and bring fear to enemies without directly endangering the pilots.<sup>4</sup> The evolution of the drone did not stop with the predator drone, the predator is already starting to be replaced by the larger more weaponized Reaper drone. The Reaper is capable of doing everything the predator once did, but in most cases on a much larger scale. The advancement of drones will continue to be of high importance for the USAF, as new developments in weaponry and reconnaissance will constantly be applied to the drone to make them the most effective modern military weapon.

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<sup>3</sup> David B. Hume, “Integration of Weaponized Unmanned Aircraft into the Air-to-Ground System” (Air University, Maxwell Air Force Base, 2007), 1.

<sup>4</sup> David Glade, Lieutenant Colonel, USAF, “Unmanned Aerial Vehicles: Implications for Military Operations” (Air University, Maxwell Air Force Base, 2000).

The psychological impacts that war has on individual soldiers has been a subject of concern and research for many years. World War One (WWI), a four-year devastating war of attrition, called for new and advanced ways in order to measure and document the psychology of warfare. In his book titled *Providing for the Casualties of War*, Bernard Rostker states that in W.W.I “The United States had more citizens under arms than had fought in all its wars to that point”.<sup>5</sup> The number of arms that were involved in the fighting led to much more than just physical strains on the body, but also mental and psychological strain. Psychology and warfare have always been interconnected with one another, it is hard to imagine a conflict where nobody on either side is affected by mental health issues due to the strains and fatigue that combat imposes on one’s body. Russ Zajtchuk, Brigadier General MC, U.S. Army. in his book *War Psychiatry* introduces the reader to the psychology of warfare. Zajtchuk focuses on three different variables that affect the psychology of an individual soldier. The first are “Individual Factors, which are the soldiers personalities, non-military stress, prior combat exposure, and combat role.”<sup>6</sup> The second factor Zajtchuk outlines are “Unit Factors, which include, cohesion and morale, training, leadership, and commitment.”<sup>7</sup> The third set of factors that Zajtchuk explains are “Battlefield Factors, which include, type of battle, surprise and uncertainty, and environmental factors (weather, terrain, etc.).”<sup>8</sup> Later in his book, Zajtchuk shifts from a more broad approach to understanding all combat soldiers to solely focusing on certain branches of the military and how each is separately affected by certain psychological factors. The study conducted on Air Force pilots starts with a broad definition of the types of stress difference pilots face compared to the ones that ground troops are faced with. Zajtchuk points out that pilots

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<sup>5</sup> Bernard Rostker, *Providing for The Casualties of War* (Rand Corporation, 2013), 123.

<sup>6</sup> Russ Zajtchuk, Brigadier General MC, U.S.Army. *War Psychiatry* (Office of The Surgeon General, 1995), 135.

<sup>7</sup> Russ Zajtchuk, Brigadier General MC, U.S.Army. *War Psychiatry*, 135.

<sup>8</sup> Russ Zajtchuk, Brigadier General MC, U.S.Army. *War Psychiatry*, 135.

during WWII are different in the way that they are trained and are fundamentally different in ways that brought them into the air combat scene when compared with modern aviators. He argues that WWII aviators were “wartime volunteers, high school graduate or college students commissioned through the Aviation Cadet Program, trained in a specified aircraft, and sent into combat with perhaps 200 flying hours altogether.”<sup>9</sup> Today, however, the circumstances are much different; in order to become a pilot in the USAF, one must have at least a bachelor’s degree and be a commissioned officer in order to fly. Pilots must be able to engage in multiple different scenarios such as reconnaissance, air-to air combat, and air-to ground missions as well. In WWII pilots were either assigned to fighter, bomber, or reconnaissance. The combination of these tasks performed by modern aviators introduces new kinds of stresses. Being able to prepare for any mission assigned is achieved by intense training that exposes pilots to multiple different scenarios.

The psychology of warfare will continue to be a prominent issue in the future; with the development of drones, the hope was that the psychological impacts would subside and become less of an issue. It has become clear that this is not the case, drone operators are just as susceptible to Post Traumatic Stress Disorder (PTSD) as were aviators in all previous aerial conflicts. There are many factors that contribute to these sustained psychological impacts, including technological advances, physical distance between target and pilot, and how much the public supports the job that is being done and the conflict that is at hand.

Technological advances of military weaponry have changed the way battlefields have been constructed throughout time. The types of aircraft that were present during WWII were

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<sup>9</sup> Russ Zajtchuk, Brigadier General MC, U.S.Army. *War Psychiatry*, 180.

mostly all metal designs, that used in many cases multiple piston powered engines that drove massive propellers. The most prominent heavy bomber aircraft that the United States had in its arsenal was the B-17 Flying Fortress. The B-17 was a four-engine aircraft that was capable of carrying a multitude of different bomb loads. The B-17 was top of the line for its time, it was able to carry 9 crewmembers and was equipped with very accurate and effective Norden Bombsight. The B-17 did not have any heating system, and was equipped with oxygen systems so that pilots would not blackout when flying at altitudes that reached up to 30,000ft. In the 21<sup>st</sup> century, the introduction of the drone into American military operations in 2002 marked the first time the drone was used in a targeted killing. This advanced technology was brought to the market as a means to separate the men and women from the battlefield without losing any efficiency when it came to destroying or surveying a target. The first drone to be operational by the U.S. Military was the named the Predator. The predator drone was the first of its kind that was able to fly long distances and survey areas thousands of miles away. According to Hume, the Predator was primarily used as a reconnaissance aircraft, but after the military saw its total potential, it was turned into a weapon that capable of pinpoint accuracy.<sup>10</sup> The ability to fly a weapon so effective, without having to leave the comfort of the United States was a very attractive substitution for sending aviators into battle with the fear of being shot down and captured. Technology has forever changed the look of the skies over the battlefield, unmanned aircraft now have the ability to survey and destroy nearly any target halfway across the world with the touch of a button.

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<sup>10</sup> David B. Hume, "Integration of Weaponized Unmanned Aircraft into the Air-to-Ground System" (Air University, Maxwell Air Force Base, 2007).

One of the hardest challenges that bomber pilots faced during WWII, was the separation from family and friends back home. In many cases young men in the early 1940's chose to volunteer their service for the chance to join the U.S. Army Air Force (AAF), rather than being drafted and sent wherever the military saw it useful. Many young men had never ridden in an airplane, let alone had the chance to fly one. In his book *Operation Thunderclap and the Black March*, Richard Allison explains one aviator's decision that "With the war effort in full swing, he (Addison Bartush) knew he was about to be drafted if he did not first volunteer for service. He chose the Army Air Forces for its promise of adventure."<sup>11</sup> The adventure that is spoken of was true for many young men during this time. Unfortunately, this still meant that they were going to be shipped overseas to fight in a foreign country. One of the most well-known bomber groups during WWII was the 91<sup>st</sup> heavy bomb group of the 8<sup>th</sup> Air Force that was stationed in Bassingbourn, England. Separation from family and friends, and being sent to a completely different country halfway across the world proved to be very difficult for many aviators. A solution to this problem was thought to be found when the U.S. Air Force (USAF) developed the drone program. The thought that being thousands of miles away, and clear of any imminent danger would be the key to success in the air war. Drone operators do not have to worry about traveling to a foreign county and being away from their families for extended periods of time. They operate right here in the United States from trailers that look like ordinary cargo hauling trailers. The physical distance from the battlefield allows drone operators to get a sense of the job that they are doing from the perspective of being at home. They have the resources available to them that allow them to keep up to date information on the conflict that they are directly involved in.

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<sup>11</sup> Richard Allison, *Operation Thunderclap and the Black Marchs* (Casemate, 2014).

During WWII, the nation as a whole was in full effort to do whatever it took to achieve victory over axis powers. The world to this day has never seen a conflict that has had so much public support than WWII. Men were shipped across the ocean to fight while women and children stayed at the home front to help build and manufacture the parts that were needed to supply the men on the frontlines. Aircraft were in high demand during WWII, and in order to keep up with the amount of missions planes flew there had to be a high production rate. The nation came together during World War II and business all over hired women and children to help mass produce the necessary tools in order to achieve victory. One company in particular was Westinghouse, they used pledges from General MacArthur that they claimed were “a part of Westinghouse and the state’s larger project to create a war wage, the goal of which was to foster a sense of national belonging among workers and civilians, thereby incorporating them into the wider war effort.”<sup>12</sup> Westinghouse was one of many companies that engaged in this type of collaboration in order to ensure that the supplies were being created as needed and shipped as soon as possible. Since the end of WWII, there hasn’t been any conflict that has received this amount of supports or complete national effort. One war that sticks out in history as a conflict that was not widely accepted, and the argument can be made that there were more against it than for it, was the war in Vietnam. The war in Vietnam was a civil war between the North Vietnamese and the South Vietnamese; the United States entered the war for support of the South Vietnamese. The conflict in Vietnam ended up being one of the most highly criticized conflicts that the U.S. has ever engaged in. Veterans returning home were treated poorly and were not viewed as being heroes, as they were after WWII. The shift in public support proved to be cause for concern when evaluating the mental health of aviators and other combat personnel.

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<sup>12</sup> Patrick Vitale, “Wages of War: Manufacturing Nationalism During World War II” (Antipode, 2011), 784.

The amount of public support for the Vietnam conflict is not much lower than modern day military operations in Afghanistan and Iraq. Drone operators today, in particular, are criticized due to the fact that they are operating from home and have to deal with the American public on a day-to-day basis. The government as a whole is affected by the lack of public support and they are trying to figure out ways to grow support for the program. Sarah Kreps and George Wallace state “some accounts suggest that recent shifts by the U.S. Government in its tenor and policy on drones are the result of increasing scrutiny and criticism.”<sup>13</sup> In Peter Asaro’s *The Labor of Surveillance and Bureaucratized Killing: New Subjectivities of Military Drone Operators*, Asaro lays out the types of issues that face drone operators, as well as the psychological impacts that are imposed on them. The second and third dimension deal with the personal side of the operators, one being the subjectivity of not physically being in the battle. Asaro points out “psychological trauma is the same, even if the threat of direct bodily harm is missing. Virtual Stress is still stress.”<sup>14</sup> The third dimension that Asaro points out is the emotional or romantic side of not being a traditional pilot. Asaro references the movie *Top Gun*, in which he uses in his argument, pilots have over time always had a sense of higher social status based on the fact that they were military aviators. Asaro argues that drone operators are not thought of as being pilots, therefore this amount of prestige does not apply to them. As mentioned earlier, drone pilots still face the same sorts of stress, but in many cases, it is more difficult for them to deal with them based on how public views them. Support for the task at

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<sup>13</sup> Sarah Kreps & George Wallace, “International Law, Military Effectiveness, and Public Support for Drone Strikes” (Journal of Peace Research, 2016), 841.

<sup>14</sup> Peter Asaro, *The Labor of Surveillance and Bureaucratized Killing: New Subjectivities of Military Drone Operators* (Routledge, 2013), 204.

hand is important for any task in everyday life; having support from the general public when starting a new business or having family support buying a new car make the process go more smoothly. The continued criticism and doubt in the operations performed by drones makes it harder and more difficult on the pilots to truly believe they are having a positive impact. Public support needs to increase for drone operations needs to increase before the stress on pilots and their families can be reduced. The ability to recognize and deal with the psychological impacts of combat flying has been studied for years, and comparing both modern drone operators and WWII bomber pilots, will help to figure out what can be done to help overcome these psychological concerns.

### **U.S Airforce**

The United States Air Force, formally known the Army Air Corps and later the Army Air Force was first created in the early 1900s and has continued to evolve and adapt to the ever-growing importance of air power. The Army Air Force which was formed in 1941 was the name of the air force throughout WWII and was finally renamed the Air Force in 1947 two years after the end of WWII. The Air Force had long been trying to create its own independent branch of the military and in 1941 this happened with the looming threat of war coming to the United States. The Army Aviation website mentions that the introduction of the Army Air Force was “one of the biggest steps towards an independent Air Force.”<sup>15</sup> Six months before Pearl Harbor, on June 20<sup>th</sup>, 1941 the Army Air Force was formed.

“As war approached, Secretary of War, Henry L. Stimson and Army Chief of Staff George C. Marshall saw the need for a stronger role for Army aviation.

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<sup>15</sup> United States Army Aviation, “Army Air Forces” <https://www.army.mil/aviation/airforces/>

Consequently, they created the Army Air Forces with General H. H. (Hap) Arnold as its head.”<sup>16</sup>

From this point on the Army Air Force (AAF) started to grow at an immense rate, as more and more ways to weaponize the airplane came into existence. In the months following the creation of the AAF, leaders created a process in which soldiers would be trained and acclimated into the new branch of military. “As the wartime build-up proceeded, more commands were added.”<sup>17</sup> These commands included “Flying Training Command, Technical Training Command, Ferrying Command, the numbered air forces and so on.”<sup>18</sup> At the onset of the creation of the United States Air Force (USAF) in 1947, the United States had effectively beaten the axis powers in WWII and reflected on how much the use of airpower had on the outcome of the war. This notion of strong airpower has continued to persist today, and the mission of the USAF has remained the same since WWII and it is simply to “defend the nation through the control and exploitation of air and space.”<sup>19</sup>

### **Evolution and Understanding of Mental Health of Aviators**

As mentioned earlier, during WWI the term “Shell Shock” was used heavily to describe the fear that soldiers faced while fighting in the trenches and having shells constantly hit near and around them.

“The term ‘shell shock’ evolved in an attempt to describe cases that arose in the context of exploding ordinance but where enduring symptoms could not be linked to the presence of an obvious organic lesion.”<sup>20</sup>

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<sup>16</sup> AAFHA “Air Corp or Air Forces” <http://www.aafha.org/air-corps-or-air-forces.html>

<sup>17</sup> AAFHA “Air Corp or Air Forces” <http://www.aafha.org/air-corps-or-air-forces.html>

<sup>18</sup> AAFHA “Air Corp or Air Forces” <http://www.aafha.org/air-corps-or-air-forces.html>

<sup>19</sup> Military.com, “History and Roles of the Air Force” <http://www.military.com/join-armed-forces/us-air-force-overview.html>

<sup>20</sup> Edgar Jones, Nicola T. Fear, Simon Wessely “Shell Shock and Mild Traumatic Injury: A Historical Review” (Am J Psychiatry), 1641 <http://www.simonwessely.com/Downloads/Publications/Military/historical/Jones%202007%20-%20shell%20shock%20mtbi.pdf>

“Shell Shock” resulted from a soldier’s inability to mentally be able to continue fighting. This problem was in many cases solved by giving the soldier a couple of days rest and then sending them back out into the battle. “In October 1917, Salmon reported that shell shock was responsible for one-seventh of all discharges from the British Army, and one-third if wounds were excluded.”<sup>21</sup> “Shell shock” was obviously a very serious issue, but in many cases it was just brushed off and life went on for these soldiers. It wasn’t until WWII when research really starts to look into the psychological effects that war has on soldiers, not just physically but also mentally. One example of this new type of research during W.W.II is the *Psychiatric Experiences of the Eighth Air Force*, a report focusing on their first year of operation. In the evaluation, the researchers take in-depth looks into record information about pilot’s personal lives and also any predisposed symptoms they have that may cause them to be more susceptible to combat stress. In one of the early sections of this evaluation the researchers focus on the reactions to combat stress. The researchers mention “crews had little chance of survival and only a small proportion did survive. These facts were known by flying personnel and were quickly learned by replacements coming into a depleted squadron.”<sup>22</sup> When new crewmembers were tasked with joining a depleted squadron, this according to the researchers was often the first time they were introduced to combat stress. New crewmembers in some cases would be so overwhelmed by the fear of the stories or the looks on the faces of the surviving members that they would request for their removal from flying duties. The second instance in which aviators were affected by combat stress was “under the impact of the first few missions (usually by the

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<sup>21</sup> Edgar Jones, Nicola T. Fear, Simon Wessely “Shell Shock and Mild Traumatic Injury: A Historical Review” (Am J Psychiatry), 1642 <http://www.simonwessely.com/Downloads/Publications/Military/historical/Jones%202007%20-%20shell%20shock%20mtbi.pdf>

<sup>22</sup> Hastings, Wright, Glueck. *Experience of the 8<sup>th</sup> Air force* (Army Air Forces, Josiah Macy, Jr. Foundation, New York 21, N.Y, 1943) 4.

fifth).”<sup>23</sup> This stress would be in direct correlation with types of things that these pilots endured during these missions:

“During the first five missions most crews would have encountered the harrowing experiences which were normal for heavy bomber operating from this theatre. Watching close-in and constant enemy fighter attack, flying through seemingly impenetrable walls of flak, seeing neighboring planes go down out of control and at times explode in mid-air, returning with dead or seriously wounded on board.”<sup>24</sup>

This sort of experience as the researchers mention took a great deal of personal toughness in order to overcome and not succumb to the fear and stress of flying. Sadly, these cases did not decline over time; the next set of cases that the researchers identified were those cases that arose later in the operational tour around the 12-16<sup>th</sup> missions, which was around the middle of their tour. This is the stage in which:

“the condition operational fatigue developed in fundamentally sound individuals who began to show the exhausting effects of chronic tension and anxiety, frequent briefings, real and practice missions and in whom the clinical symptoms might be said to represent about 50% fatigue and 50% emotional illness.”<sup>25</sup>

As is evident from this detailed contemporaneous research, it is clear that there was a new-found importance given to the mental health of soldiers.

The notes and documentation of the experiences of pilots serves as another good tool for comparison between the bomber pilots and twenty-first century drone operators. Many of the types of stresses that were mentioned in the research does not pertain to drone operators, but absence of some of these experiences may nonetheless lead to mental health issues and PTSD in modern day drone operations. In the psych evaluation of the 8<sup>th</sup> Air Force, researchers state “The most marked response in some meant does not occur until the raid is over and they have

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<sup>23</sup> Hasting, Wright, Glueck, 5.

<sup>24</sup> Hasting, Wright, Glueck, 5.

<sup>25</sup> Hasting, Wright, Glueck, 6.

begun to think or talk over the events which transpired.”<sup>26</sup> This sort of talking/ reminiscing does not occur with modern drone operations. Drone operators, once finished with their mission return home, either to their families or friends they live with or just back to their own home, where they cannot say anything about what transpired that day, and must keep secret the missions that they completed. Keeping information from family and friends is always a tough thing to do; pilots in WWII, in contrast, had the ability to talk and drink with their crewmembers after the missions, which in many cases helped them get over the hump of emotional stress, at least for the time being.

Another key component that the researchers point to is the reaction to immediate great danger. The researchers mention that by looking at these reactions it allows them to get a sense of the true colors of many of the aviators:

“Combat men have reported instances in which crewmembers have responded ineffectively to emergencies, in a variety of ways: a co-pilot, seeing his pilot killed, put his arms over his eyes and paid no heed to the controls.”<sup>27</sup>

These sorts of emergencies happened all the time, this is one area in which the types of stresses don’t apply to drone operators. Drone operators know what their target is, they are tasked with studying it for months, and when the time comes to take the target out, they are thousands of miles away, and the worst thing that could go wrong is the missile not firing, in which they return home and live to fight another day.

The types of stresses have changed with the time, and the understanding of these stresses and of the mental health of aviators has continued to grow. There is much room for improvement, but PTSD is starting to become recognized as a serious mental condition that

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<sup>26</sup> Hasting, Wright, Glueck, 9.

<sup>27</sup> Hasting, Wright, Glueck, 11.

needs to be treated if the nation is going to continue to operate drones to take out major targets around the world.

### **Technological Advances**

Thanks to the constant emergence of new technology, the USAF has effectively figured out a way to counteract terrorism without stepping foot inside a foreign country. The drone operations carried out in today's military are an example of the superior air force capabilities that the United States possesses. Although different from the times of World War II when pilots were tasked with physically being in the airplane and dealing with weather, other fighter aircraft, and Anti-Aircraft (AA) guns, drone operators face the same type of strenuous hours behind the controls and the realization that they are being tasked with killing other human beings. The consequences for making a mistake in modern drone operations are much more severe based on the technology and destruction that one predator drone can produce.

The invention and first flight of the airplane in 1909, introduced a new form of technology that had never been seen before. This new-found technology discovered by Wilbur and Orville Wright on the plains of Kitty Hawk did not take long to become one of the world's most effective and destructive weapons. At the onset of World War I in 1914, the airplane had already been modified and updated in order to be able to withstand the strains of combat, and was used to carry bombs and machine guns. According to the Encyclopedia Britannica:

“At first, aircraft were unarmed and employed for reconnaissance serving basically as extensions of the eyes of the commanders on the ground, the need to deny such reconnaissance to the enemy led to combat in which each side tried to gain superiority in the air.”<sup>28</sup>

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<sup>28</sup> Encyclopedia Britannica

Fast forward 23 years and the military had turned the airplane in the most effective and important combat tool. The airplane was used in many different roles, such as fighters, bombers, and reconnaissance. Battling sides constantly fought for control of the air, which proved to be vital when planning any sort of attack or offensive on enemy territory. The warfare being conducted during WWII was dehumanizing, the goal became to knock out as many enemies as possible no matter what the consequences. Lt. Norman Retchin describes his view of WWII in his diary:

“It’s a damn strange feeling, flying over enemy country for the first time. There are people in the air and on the ground whose sole purpose is to kill you, and you don’t even know them. At least if we could be properly introduced and know each other long enough to work up some sort of mutual distaste, the feeling might be altered somewhat.”<sup>29</sup>

The invention of the B-17 and B-24 heavy bombers allowed for the United States to carry out long range missions to hit the heart of the German forces, as well as hitting specific strategic targets. In many of these missions there were civilian casualties, but the fundamental shift towards total war during WWII proved to be the only way to defeat the Axis powers. These long missions proved to be very taxing on the mental and physical health of the pilots and crewmember, who were tasked with waking up early and flying anywhere from 5-10 hours per mission. In Richard Allison’s *Operation Thunderclap and the Black March: Two World War II Stories from the Unstoppable 91<sup>st</sup> Bomb Group*, he explains the relief of one airmen that was in realization that he had flown 31 missions and would not have to fly number 32. “He no longer had to suit up every fourth or fifth day in the very early morning. He no longer had to endure a somber breakfast followed by a tense mission briefing.”<sup>30</sup> The early mornings, long days and

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<sup>29</sup> Lt. Norman Retchin, “An Airman’s Diary”, 22.

<sup>30</sup> Richard Allison, *Operation Thunderclap and the Black March*, 12.

taxing amount of flight hours unfortunately continues to be an issue in the modern military setting.

The emergence of the drone as a formidable weapon was realized in 2002 when a predator drone carried out the first unmanned aerial assault on an enemy position. Until this point the only use that drones had in the military was for reconnaissance. The ability to fly weaponry thousands of miles away by simply looking at a computer monitor allowed the USAF to carry out surveillance missions as well as taking out high value targets without endangering their aviators. When comparing drone operators to bomber pilots during WWII, it is very easy to see the difference, but looking at the similarities is what helps understand the types of psychological impacts of military aviation.

Diaries from WWII bomber pilots constantly makes reference to the weather and how it impacts their day to day operations. 1<sup>st</sup> Lieutenant, Allen Brill describes the weather being an issue almost every day. In his diary, almost every mission has some sort of weather problem whether it be heavy cloud cover over the target area, in which the Norden Bombsight was not effective, or bad weather which was cause to scratch the mission altogether. The constant scratching of missions took a mental toll on bomber pilots, getting up and getting prepared mentally, just to be let down and informed they weren't flying was tough to handle. Drone operators do not have to worry about this sort of issue, the technology of the day allows them to be able to see through cloud cover with the use of infrared. The Drone are also equipped with night vision which allows them to hit targets effectively at any time of the day. Bomber pilots used to have to fly tight formations for long hours, and maintaining position in the formation was key to a successful mission. If a bomber were to drift out of position, it could potentially cause a midair collision with another bomber; or if left alone, the single plane would be an easy target for

any German fighters in the area. In William Arthur's diary, he mentions many experiences not only by his crew but also by his entire bomb group. Arthur was a B-17 pilot during WWII and completed all 35 missions of his tour in Bassingbourn, England from June 6<sup>th</sup>, 1944 to October 15<sup>th</sup>, 1944. The experiences that he outlines in his diary entries are those that with the improved technology, are not prominent issue in today's military. These include the accuracy of bomb placement, weather blocking the view of the bombsight, and long hours on oxygen. The use of oxygen in WWII aircraft was for the purpose of flying high altitude missions; bomber crews would be on oxygen whenever they were over 10,000 feet and would remain on oxygen until they had completed their mission and were descending back under 10,000 in friendly airspace. As reported in Arthur's diary, duration on oxygen "was one of the indicators of the duration of stress on a mission used by the crews."<sup>31</sup> As mentioned earlier, drone operators do not have to worry about heavy cloud cover blocking their vision. Technology has allowed the drone operators to get a good visual on the given target, no matter what the circumstances may be. The accuracy of drone strikes is way more advanced then in WWII, drone pilots have the ability to lock onto a target and fire a rocket with pinpoint accuracy. In WWII bombers had to fly long range missions, deal with wind, and obscure targets to effectively do damage. There was always the fear that bombs may drift and accidentally hit friendly targets. The psychological stress in this situation is higher on the bomber pilots because they know they have to be very precise in their calculation and their judgment in order to keep friendly soldiers out of harm's way.

The number of drones makes it easy for the U.S. to keep an eye out for soldiers on the ground. As Paul Bauman states in his interview with Jason Koebler, "You can't find a conflict

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<sup>31</sup> William H. Arthur, dairy, July-October 1944. 3.

where there's not a Global Hawk nearby.”<sup>32</sup> The Global Hawk is the newest drone that is operational in the USAF; it is much bigger and faster than its predecessor the Predator. With this advanced technology there is also more responsibility as Matthew states: “I’m in a position where I could do harm to someone on the ground or not provide the that support someone needs. Their life if on the line. We take it very seriously, and come in with our game face on.”<sup>33</sup>

The differences in the technology of the time period in question makes it hard to draw direct similarities, but research shows that just because the pilot is not in an imminent danger does not mean that they aren't faced with situations that cause them mental and emotional problems. WWII bomber pilots have the constant fear that they may be shot down, or that they might drop their ordinance on the wrong position resulting in friendly casualties. Drone pilots must worry about making sure that they have the right target in sights and are tasked with making sure they are making the right decisions while taking out a target halfway across the world.

### **Physical Distance:**

The psychological impact of physical distance have two separate avenues to evaluate, one being the physical separation from one's family and friends, and how that affects the mental health of the aviators. The second avenue to evaluate is the difference between being directly in the line of fire while dropping bombs versus sitting thousands of miles away, clear of any danger and firing missiles that are killing enemy targets that have no way of a taking cover or fighting back.

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<sup>32</sup> Paul Bauman, “The Curious, Stressful Life of a US Military Drone Pilot. (Motherboard, Jason Koebler, 2014).

<sup>33</sup> Matthew, “The Curious, Stressful Life of a US Military Drone Pilot. (Motherboard, Jason Koebler, 2014).

Separation from one's family and friends in any regard is tough to deal with for many people. In the case of WWII bomber pilots, this separation was thousands of miles, men in the 91<sup>st</sup> bomb group were stationed in Bassingbourn, England. Drone operators face a very different scenario; drone operations are run within the United States and in many cases the men and women who operate drones live very close to their loved ones. Flight Commander of Drone Operations in North Dakota, Paul Bauman explains the scenarios that his pilots are faced with in terms of their distance from home. Bauman states:

“They leave their house, drive three minutes, and walk into a metal box and it's like walking into a central command or Pacific command or another theatre... You fly your mission and walk out of your box, then you are back in North Dakota.”<sup>34</sup>

Many diaries and memoirs from bomber crews during WWII mention family members back home and the sense of displacement that the pilots are forced to deal with. Living in a completely foreign country to fight for your life, and the lives of the men that you are surrounded by, is a daunting task to even think about. In his diary, William H. Arthur makes constant mention of how he misses his family back home as well as expressing his excitement whenever he sends/receives mail from either his mother or his wife.<sup>35</sup> Arthur is not alone in this regard; many diaries that have been collected over the years show evidence of the profound excitement that these airmen experience when they get the chance to hear from their loved ones back home. Allen Brill mentions his wedding anniversary in his diary on November 16<sup>th</sup>, 1942, “Eight Months ago today we were married. Nothing to do today but remember the days we were together.”<sup>36</sup>

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<sup>34</sup> Paul Bauman, “The Curious, Stressful Life of a US Military Drone Pilot. (Motherboard, Jason Koebler, 2014).

<sup>35</sup> Diary of William H. Arthur

<sup>36</sup> Allen Brill Diary

The modern technology of the drone and its operations allow the pilots to never have to leave and experience living in a foreign country with the threat of being attacked. The distance from the battlefield is an advantage in terms of potentially saving lives of American airmen, but in another regard, not being on the battlefield and sharing the comradery with fellow soldiers leads to mental stress for many drone operators. In an experiment conducted by Stanley Milgram in the early 1960s, Milgram wanted to determine whether or not Nazi's during WWII were actually killing Jewish people because they had an inner hatred for them or if they were just simply following orders. "Eichmann's Legal defense that he was just following orders suggested that the final solution to the 'Jewish problem' in Europe was engineered by desk murderers positioned in hierarchies of authority across the Nazi bureaucracy."<sup>37</sup> This notion of just following orders can be directly compared to both bomber pilots and drone operators. In both cases, orders come from the higher-ranking officers that oversee the operations carried out. In WWII bomber pilots had no idea as to where their target was going to be on any given day. Drone operators experience much of the same. "Monday, he could be flying in Iraq near and Islamic hotspot, Tuesday he could be playing basketball with his friends, and Wednesday he might be in Afghanistan."<sup>38</sup> Former drone operators such as Brandon Bryant suffer from PTSD, due to his time behind the controls of a drone. Bryant has been one of the most outspoken voices on the downsides of utilizing drones to counter terrorism. Bryant tells the story of his second shot that he took as a drone operator which included him surveying a building for many hours that he was told contained a high-value target. Bryant had no further instructions until he was instructed to fire upon the building, not knowing for sure if the target was in the building or if there were any other individuals present. As the rocket neared impact, Bryant states "This figure

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<sup>37</sup> Augustine Brannigan, "Stanley Milgrams Obedience Experiments: A Report Card 50 Years Later" (Society, 50).

<sup>38</sup> Paul Bauman, "The Curious, Stressful Life of a US Military Drone Pilot. (Motherboard, Jason Koebler, 2014).

runs around the corner, the outside, toward the front of the building. And it looked like a little kid to me. Like a little human person... There's a giant flash and then all of the sudden there's no person there anymore."<sup>39</sup> Bryant to this day is haunted by the thought that he may have killed an innocent child. At the time of the shot, Bryant was just following the order that were given to him. The consequences of following this order according to Bryant was one of the issues that led to his problems with PTSD.

The differences that arise between the two groups derives from the companionship that one is able to engage in as well as having the ability to fight back. Bomber pilots and copilots did not have any way of defending themselves while flying combat missions. Lt. Norman Retchin explains "being a pilot or copilot with no guns to shoot gives us a hopeless feeling. That glass enclosed cockpit, it's like driving away in a station wagon and having someone toss rocks at you."<sup>40</sup> Pilots were forced to rely on their fellow crewmember to defend them while they fly in tight formations over heavily defended airspace. The companionship is evident in many of the diaries from bomber pilots. There is a profound connection with the crewmembers that they were flying with. When a crewmember or other crewmembers from other planes in the group were lost, there was a sense that one had lost a family member. The companionship between the pilots and their crews has been maintained since the end of the war. The 91<sup>st</sup> bomb group in particular, has kept their fellow crewmembers close and have stayed in contact with many of their fellow airmen. The 91<sup>st</sup> bomb group website has links to their groups newsletter which they have published since 1967. The group meets every year as a means to get together and reminisce about old war times as well as to celebrate the lives of those who were lost during combat.<sup>41</sup> In

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<sup>39</sup> Brandon Bryant, Matthew Power, "Confessions of Drone Warrior" (GQ, 2013).

<sup>40</sup> Lt. Norman Retchin, "An Airman's Diary", 22.

<sup>41</sup> 91<sup>st</sup> Bomb Group Website

contrast, Drone pilots often have no opportunity to build similar connections. Drone operator Matthew, for examples, noted that “he could work with one team one day and not work with them again for months.”<sup>42</sup> It is difficult to match the level of companionship when one person is tasked to work with different crews every day. Bomber pilots lived, ate, and slept together for months, until they either finished their number of mission, or were shot down. They formed bonds that continue to stay strong and last throughout their lifetimes.

### **Public Support**

Since WWII, the nation has never seen a conflict that has involved such a high number of civilians supporting the war effort. Figures such as Rosie the Riveter were the driving force behind the mass number of women joining the cause to support the men that were fighting overseas. War bonds were advertised all over the nation as a means to help raise money to continue the fight towards victory in both Europe and the Pacific theatres. Pilots and bomber crews were sent home in order to serve as propoganda to sell war bonds. The most famous bomber of the 91<sup>st</sup> bomb group, *Memphis Belle*, and her crew were sent home after they had completed their final mission together. The *Memphis Belle* was one of the first aircraft to survive all 25 missions with her entire crew still intact. Another iconic figure used for propoganda was the United States’ highest scoring ace (5 aerial combat victories), Richard Ira Bong. Bong was credited with 40 kills at the end of his time in the war and was sent home to help sell war bonds and generate more public support for the war effort. The public bought into the government’s efforts and the amount of work that was done on the home front not only boosted the economy but also payed huge dividends for the eventual victory. Unfortunately, this

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<sup>42</sup> Matthew, “The Curious, Stressful Life of a US Military Drone Pilot. (Motherboard, Jason Koebler, 2014).

sort of public support has not been present during or after subsequent conflicts since WWII. One conflict in particular that sticks out in American history is Vietnam. The American involvement in the Vietnam civil war between the South and the North proved to be one of the most controversial times in the American military history. Veterans returning home were in many cases mistreated and neglected by the public and also in many cases from their own family members. One Vietnam veteran returning home reminisced on his experience back home after his tour in an Oral history interview. Louis Raynor states, “No one seemed to care about my time in Vietnam, especially those people who hadn’t themselves been vets. Everyone looked at me like I had done something bad.”<sup>43</sup> This mindset of not feeling welcome home was experienced by many other returning soldiers. Vietnam marked a fundamental change in the way that public supported warfare and was really the first time in which protest were held to actively oppose the war. The ability of the public to speak out against the war has only increased since the time of Vietnam due to the increase in modern media and the emergence of social media. Modern drone operations are still not widely accepted by the general public, and this poses threats to the mental health of the operators of these drone, much like it did to soldier that fought during the Vietnam War.

In order to properly understand how public support plays a role in the mental health of American aviators it is also key to understand how much knowledge the public had about the conflict in question. In WWI, as mentioned earlier, the whole nation came together and worked together to help win the war, whether it be fighting overseas or working in factories supplying the troops. As technology advanced, the amount of news coverage and publications started to rise. During Vietnam, writers and other media members would travel to the frontlines and record

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<sup>43</sup> Sharon D. Raynor, Louis Raynor, “The First Saddest Day of My Life: A Vietnam War Story”, 2009.

the events that were happening. The American public was much better informed as to what was going on the ground, including collateral damage to the local population. This allowed the public to form their own opinions by getting first-hand look at the events that were unfolding and of the war itself. Vietnam was already not widely accepted at the onset, and when the public saw the deaths and destruction that is being dealt out, it just fed the existing disliking of the war as a whole and public support declined even more heavily.

In contrast, public knowledge about the current drone operations taking place is usually slim to none. The American people know very little about the drone operations that take place day-to-day. Knowledge of the drone program itself is well known among the public, but many people don't hear anything about the tasks they carry out until something goes wrong. It is very hard to be a supporter of a program when you don't know anything about the details of the operations and the only time you get any information is when something happens that should not have.

The evaluation of how public support affects the mental health of both drone operators and WWII bomber pilots starts by looking at a document published by the National Center for Posttraumatic Stress Disorder (NCPTSD). In this article the NCPTSD states that factors such as an individual's perception of the life and death situations that they are involved in, social morale and public support are all factors in the development of PTSD, either during combat or several months after combat.<sup>44</sup> The study evaluates soldiers immediately after they return home from service and six months after they are home. Results show that the amount of PTSD cases increase after the six-month time frame after they return. The researchers mention that the way

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<sup>44</sup> Brett T. Litz & William E. Schlenger, "PTSD in Service Members and New Veterans of the Iraq and Afghanistan Wars: A Bibliography and Critique" (National Center for PTSD, 2009).

the public views the soldiers has a lasting impact of the mental health and the more time they are exposed to trying to return to a normal life the more they develop PTSD symptoms in many cases. In an article by *The Nation*, titled “American Drone Operators are Quitting in Record Numbers: An Internal Air Force Memo Reveals that the US Military’s Drone Wars are in Major Trouble”, author Pratap Chatterjee reveals that people refer to the drone war as “the coward’s war.”<sup>45</sup> Without public support, the tasks of carrying out drone operation becomes more difficult. Drone operators live within their communities; they are thus immediately aware of media reports about their operations. In WWII, bomber pilots lived abroad, in quarters 1000s of miles away from their loved ones and community. This separation allowed them to be able to focus more on the task at hand rather than dealing with the issues of public support.

The public views the drone operations as more of a video game than they do as a form of combat for the pilots. Brandon Bryant explains his person view on how the public views his job as a drone operator: “People think it’s a video game... But in a video game you have checkpoints, you have restart points... With drones, when you fire a missile, there’s no restart.”<sup>46</sup> This notion of playing a game is tough on drone operators, because as Bryant mentioned there is no turning back once that missile is fired, and that target is taken out. WWII bomber pilots faced the same sort of problem, that once they dropped their bomb load over their target there was no turning back or redoing the mission. The big difference between the two as mentioned before lies in the public support and knowledge of the task being carried out. More of an understanding of the mental strain that is put on drone operators when they are tasked with taking out a target halfway across the world may help increase public sympathy (if not support for the operation)

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<sup>45</sup> Pratap Chatterjee, “American Drone Operators are Quitting in Record Numbers” (The Nation, 2015).

<sup>46</sup> Jake Heller, Brandon Bryant, “Former Drone Pilots Denounce ‘Morally Outrageous’ Program” (NBC News, 2015).

which in turn may reduce the likelihood of mental health issues such as PTSD for drone operators. The public should look back at WWII and evaluate what public support for a conflict can do for not only the nation as a whole, but also the motivation and the sense of belonging that bomber pilots had that drone operators don't. Instead of criticizing the men and women and the job they do as drone operators, there should be more effort to understand the implications of this criticism and the affect it has on the operators.

### **Conclusion**

At first glance, drone operators and WWII bomber pilots don't appear to be very comparable other than the fact that they are a means by which the military can take out targets using high level airstrikes. The striking similarities arise when research goes deeper into the psychological factors that impact these two different groups in their respective time periods. WWII bomber pilots such as Norman Retchin experienced first-hand the psychological impacts that warfare has on people, he explains his experience in his diary, "While Joe Reynolds was packing, Lathers picked up the gun. Several shots rang. Joe, bleeding, was helped downstairs. As he reached the first floor, he died. Lathers, his best friend, is in the hospital now being treated for shock. Will probably never fly again."<sup>47</sup> These sorts of incidents were not uncommon during WWII and unfortunately they are still present issues with drone operators in modern society. Brandon Bryant, as mentioned earlier, is one of the most outspoken pilots regarding the mental stress that he has had to endure as a result of his time as a drone operator. Certain events in his life stick out to him and continue to haunt him to this day, and are a big factor in his PTSD. The mental health of U.S. aviators has been an issue since WWII and to this

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<sup>47</sup> Norman Retchin Diary pg.24

day continues to be an issue. The issue of mental health has not been treated with the respect and importance that it should be. Technological advances that have led to the automation of the American airstrike makes it easier and more convenient for the air force to carry out long range mission that serve to counter terrorism. This advance in technology has led to a shift in the physical placement of the pilots in regards to where the mission is actually carried out. The physical placement opens the door for many issues pertaining to guilt and public support. The drone program has been one of the most criticized developments in U.S. military history and the shift of public support from WWII to twenty-first century modern drone operations is a key driving force in the mental health of many aviators today. The introduction of the drone was thought to be the answer to the issues that first arose in WWII, but it is evident that the issues continue to persist. Unless counter measures are taken to understand, and act on these issues, the mental health of aviators will continue to be a prominent issue in the United States. This research is hopefully a starting point to increase public awareness for the mental health of the American aviators that continue to protect the United States from dangers that the nation thankfully never sees.

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